NanoPlayer

Audio Player
MP3 & Wav

MANUAL

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ID-AL is a trademark of Waves System.

WARNING: DO NOT EXPOSE TO MOISTURE AND DUST !
Unplug the power cord before any intervention !
FOR YOUR SAFETY, PLEASE READ CAREFULLY THIS OPERATION MANUAL
BEFORE USING YOUR PLAYER

A. SAFETY INSTRUCTIONS

A.1 CE marking

The CE marking is on the ID plate, at the back of the product. It means this product complies with the low voltage CE directive, according the EN 55022 standard, and the EMC directive 61000-4-x.

A.2 Directives

• Electro-magnetic compatibility (EMC) and low voltage directive requirements are satisfied.

A.3 Overview

• The user's manual forms an integral part of the unit. It must be kept close to the unit. Precise observance of these instructions is a pre-condition to use the unit for the intended purpose and for its correct operation.

This user's manual must be passed on to any future purchaser or operator.
The staff would receive instructions concerning the correct use of the product.

• Safety for the operator as well as trouble-free operation of the unit is only ensured if use is made of original equipment parts. Moreover, use may only be made of those accessories that are specified in the technical documentation or that have been expressly approved by the manufacturer. The manufacturer cannot guarantee for the safety or proper functioning of the unit in the case where accessories or consumables are used which are not supplied by the manufacturer.

• The warranty doesn't cover damages caused by use of accessories or consumables which are not supplied by the manufacturer.

• The manufacturer only regard himself as being responsible for the equipment with regard to safety, reliability and proper functioning if assembly, re-settings, changes or modifications, extensions and repairs have been carried out by the manufacturer or a company authorized by the manufacturer and if the equipment is used in conformity with the operating instructions written in this manual.

• The AP103 MicroPlayer complies with the applicable technical safety standards at the date of print. All rights reserved for electrical diagrams, procedures, mentioned names and equipments.

• No reproduction, in whole or in part, without the written permission from Waves System.

A.4 General safety instructions

This equipment left our facilities in perfect conditions of operation. In order to maintain these conditions, for safety and to avoid any risk of injury, the user must imperatively follow the safety instructions and read the ´Warning!´ notes in this manual.
This equipment, manufactured by Waves System, has been so designed that any danger is virtually excluded provided it is used according to its purpose. However, for safety reasons, we are obliged to point out the following measures:

• When operating this appliance, observe all local rules and enforced regulations!
The homologation shall be invalid if any modification or alteration is made on the appliance. Operating modified appliances may lead to a penal suit. In the interest of the safety of work, the manager and the operator will be responsible for respecting the instructions.

• Retain all packing material in case the device must be shipped. Take care that it does not fall into the hands of children. Only the original packing guarantees optimal safety of the appliance during transport. Should it be necessary to ship the product during the guarantee period, Waves System will not accept claims for damage arising during the transport from using incorrect packing material!

• This product is dedicated to broadcasting music. It may only be operated by trained or knowledgeable personnel who can handle the device correctly.

• Before every use, the operator must check the functional safety and the condition of the appliance.

• The operator must be knowledgeable in the operation of the appliance.

• This device must not be used in places with potential explosion risk. Moreover, it must not be used in an environment favouring combustion neither in a wet or excessively hot or cold place.

A.5 Safety instructions against risks pertaining to electrical current

• The appliance must be connected to a grounded AC power outlet or a correctly wired CEE AC outlet.

• Before connecting the appliance, verify that the power supply voltage and frequency match the specifications indicated on the appliance.

• Before powering, check that the appliance and the cables are not damaged. Damaged cables and connections must be immediately replaced.

• Never leave power cords enter in contact with other cables! Handle the power cord and all the cables connected to a power supply with extreme care.

• Always connect the power supply last. Check that the power switch is ´off' before connecting the appliance to mains supply. The mains outlet must be accessible after installation.

• Check the appliance and its power cord from time to time.
Unplug the power supply if you don't use the appliance anymore or for maintenance.

• Always grasp only the plug on the power supply cord. Never pull the cable to unplug.

• Power supply, repairs and maintenance must be done by qualified personnel.

• Do not switch the appliance on and off in short intervals, as this may reduce its life, especially concerning the hard disk.

A.6 - Conditions of use :

• This product has been designed for indoor use only.

• If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.

• Do not shake the device. Avoid brute force when installing or operating the device.

• When choosing the installation-spot, please make sure that the device is not exposed to extreme heat, moisture or dust. There should not be any cables lying around, for your own safety and that of bystanders.

B. PRODUCT INFORMATION

B.1 Correct usage

The player is designed for automatically broadcasting audio files.
Correct usage implies observation of the instructions in this manual as well as observing the requirements concerning installation.

B.2 Incorrect usage

Any other use beyond this is considered as incorrect usage. The manufacturer will not be liable for any damage resulting from incorrect usage. The operator carries all risks.

B.3 CONTENT

NanoPlayer audio board
User manual

B.4 TECHNICAL SPECIFICATION

Audio Player MP3 and WAV - Model NanoPlayer
Nominal values for power supply : 12V DC

B.5 INSTALLATION

The apparatus must be set up in a dry and dust-free room.
Do not install the player too close to a wall. To avoid overheating, the ventilation holes must be kept clear and an air circulation gap must be left above the unit.

B.6 ELECTRICAL CONNECTION

Before use, compare mains voltage with that specified on model plate.

1 - Product presentation

The NanoPlayer is an audio player which reads MP3 and WAV files stored on a SD memory card. Playback can be automated to read files in loop or when triggered by the input contact.

The NanoPlayer is a versatile player designed for installations where broadcast of sounds, music, sound effects or commentaries are required such as museums, exhibitions, POS displays...

2 - Functionalities

Interactivity: The NanoPlayer is interactive, i.e it can be actioned by an external event, by trigger of the electrical contact.

Autoplay: This function is available on the NanoPlayer; the player will automatically start playing the selected files on powering on.

Broadcast mode: The way files are organized and named on the SD card fully defines the broadcast mode. Digit codes inserted in file names and directory names provide powerful automation of playback patterns.

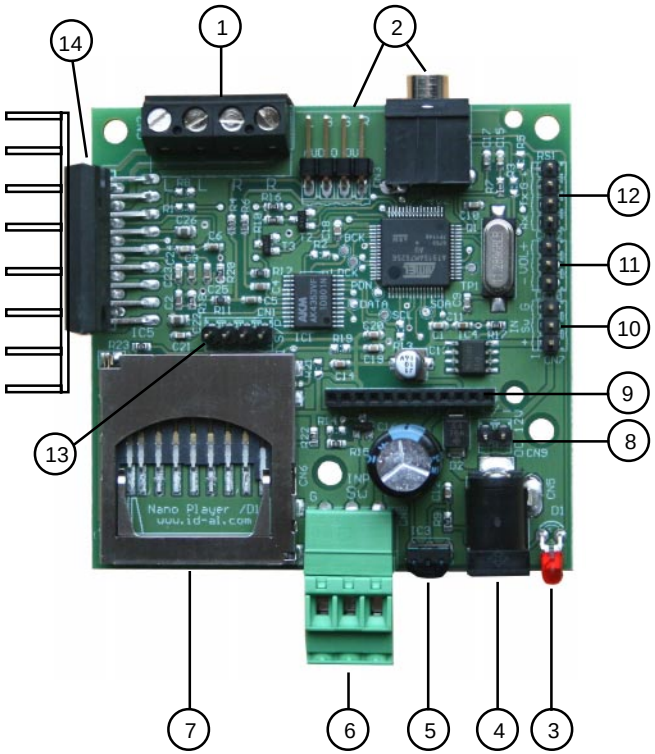
Updating: By removing the SD card from the player to transfer updates using a card reader on a PC.

Audio output: Two audio outputs are available. Line level stereo output on standard 3.5 stereo Mini-jack to connect the player onto a sound system and amplified output on screw-in terminal block to connect directly onto speakers. The ouput power is sufficient for several small to medium sized premises.

Power supply: The player is protected against polarity reversal. Caution, the NanoPlayer accepts variations between 10 and 15V. Outside this range, the player could be damaged.

Amplifier output power is determined by the power supply. When the line level output is used a 500mA 6W unit is enough to power the NanoPlayer. If the integrated amplifier is used a 2A (24W) power supply unit minimum is required. If the supply unit has insufficient power, sound will be very bad and the power unit will heat up and eventually break down.

3 - Installation



1 - Amplified audio output

2 - Line level audio output

3 - Luminous indicator

4 - Power supply

5 - Infrared detector

6 - Input contact

7 - SD card connector

8 - Secondary power supply

9 - GPS extension

10 - Input contact

11 - Volume level setting

12 - Option (Serial link)

13 - Option S/PDIF

14 - Amplifier + heat dissipation device to be added

Memory card: choose a good quality card of a **minimum size of 64Mo** - New cards are usually formatted in «FAT». You can also use FAT32 format for SD card above 512Mo.

Push the card without forcing. To remove, push on the card to release it.

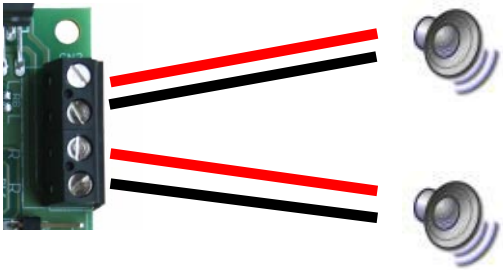
Caution, the NanoPlayer does not have any on-off switch. The player is powered on as soon as it is plugged in.

The SD card must be inserted or removed when the NanoPlayer is NOT POWERED ON.

The amplifier heats up. It is important to add a cooling device whose size must be in relation with the required power.

1 - Speaker Output: The NanoPlayer includes a built-in amplifier. The board can therefore be connected directly onto speakers. Connect the speaker wires onto the output of each of the 2 channels.

Caution: Never connect outputs between themselves, do not create short-circuits and do not use speakers with lower impedance than specified in the player specification.



2 - Audio Output: on the line level stereo output, connect an amplifier, sound system, mixer or any device providing a line level input. The 4 pins connector offers an internal connection link.

Left output
Ground
Ground
Right output

Stereo audio output on mini-jack 3.5

3 - Luminous indicator: a red LED displays the status of the player
LED off: the player is not powered or in stand-by mode
LED flashing quickly (2 flashes per second): the player is reading
LED flashing slowly: Error signal - for example when memory card is empty

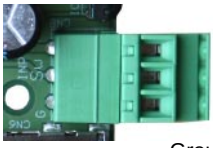
4 + 8 - Power supply: If the player is powered with a filtered and regulated power supply unit or a battery, the recommanded tension is 12V DC, even if the player can be powered between 10V and 15V. The current used will depend on the power of the amplifier.

5 - Infrared: The NanoPlayer can be controlled with a infrared remote handset (not supplied with the OEM board - available separately).

Connect a PSU or a 12V battery - The 2 pins connector allows internal supply when the board is integrated. Diode protection against polarity reversal.

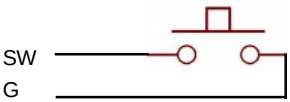
ID-AL remote control handset

6 + 10 - Input on dry contact: Connect a push button, presence detector, smoke, heat, light or pressure sensor ... relay output, or any type of contact to trigger the player on happening of an event. Create a brief contact between «SW» input and the ground G.



- 12V (+) power supply output (to power an external device)
- Input contact (SW)
- Ground (G)

- Ground (G)
- Input contact (SW)
- 12V (+) power supply output

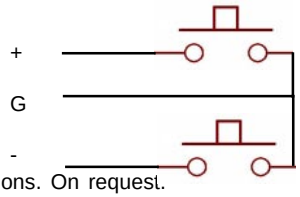


7 - SD memory card: Insert a memory card in the slot (minimum storage capacity 64Mo). **When inserting or removing the memory card, make sure that the player is not powered on.**

9 - GPS extension connector: a GPS extension is available as an option. This module allows automated broadcast of audio information in relation to the geographical positioning coordinates. On request.

11 - Volume setting: volume setting is provided by connecting 2 push buttons on the «VOL» connector. Adjust volume by pressing Volume + and Volume - buttons.

- Volume + button
- Ground (G)
- Volume - button



12 - Option connector for serial link: for future extensions. On request.

13 - S/PDIF connector: To provide a digital audio S/PDIF output. On request.

14 - Amplifier: The amplifier heats up and it is important to add a cooling device. The size of the device must be proportional to the desired power; the wall of the case, a piece of metal or a purchased cooling device can be used.

4 - Operating the player and naming of files

The NanoPlayer reads files and playback instructions stored on the SD memory card. No extra software is required to configure the player. Playback options are provided by the way files are named and organized in the directories.

There are two categories of files:
1 - Files to be played on powering on the player and played back in loop.
2 - Files to be played when the input contact is triggered.

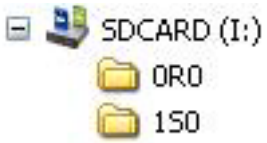
These 2 categories of files are represented by directories or folders. Naming of directories results in various playback options.

Example of use:
On powering on, a chosen file is played and loop. When a push button is pressed (or when a presence detector is activated), the loop file stops and the file associated to the input trigger is played ; after playing the triggered file, the loop file is played again.

4.1 Organization of the two directories:

Only one level of directory is allowed at the root of the memory card. Two directories only are permitted. Directory names are composed of 3 meaningful characters.

Example : «0R0» or «1S0»



The 3 meaningful characters are 1 figure + 1 letter + 1 figure.
After these mandatory digits, it is possible to add a chosen directory name which is ignored by the player but could be useful to identify the content.

- **The 1st digit defines the directory number - Value 0 or 1**

0xx: Directory 0 is the default directory, automatically read on powering on the player
1xx: Directory 1 is the directory read when the input contact is triggered

Example :
0S0: Directory N°0 - «Autoplay» directory, played on powering on
1R0: Directory N° 1 - Trigger directory, played when the input contact is activated

On switching on the NanoPlayer, presence of the Autoplay directory N°0 is checked ; if the directory is present, playback of the content automatically starts. If the autoplay directory is not present, the player goes into stand-by mode and awaits for activation of the input contact.

- **The 2nd digit is a letter which defines the playback mode of the directory**

Directory 0 - «0xx» - has 2 playback modes - Directory 1 «1xx) has the same 2 + 2 additional playback modes

For the default directory (read on powering on) «0xx»:

xRx : R for random mode (RND)
xSx : S for sort mode, i.e. playback in a defined order (SORT)

- «R» selects random playback of the files included in the directory.

- «S» selects sequence order playback of the files included in the directory. Sorting is done in numerical order of file names which must start with 3 figures, followed by complementary characters if desired.
Some examples:
001 my song.mp3
002 another song.mp3
003 a message.wav
004.wav
....
999 another music.mp3

In sequenced order «S», non-numbered files are ignored.

For the trigger directory «1xx»:

xRx: R for random mode (RND) - the WHOLE directory is read randomly
xSx: S for sequence order (SORT) - the WHOLE directory is read in sequence order
xNx: N for reading of a SINGLE file only - On each trigger, the next file is played in RANDOM mode.
xTx: T for reading of a SINGLE file only - On each trigger, the next file is played in SEQUENCE ORDER.

- «R» selects random playback of ALL the files included in the directory.

- «S» selects sequence order playback of ALL the files included in the directory. Sorting is done in numerical order of file names which must start with 3 figures, followed by complementary characters if desired.
Some examples:
001 my song.mp3
002 another song.mp3
003 message.wav
004.wav
....
999 another music.mp3

In sequence order «S», non-numbered files are ignored.

- «N» selects ONE FILE playback on each activation of the input contact. On each trigger, next file is played chosen randomly in the directory.

- «T» selects ONE FILE playback on each activation of the input contact. On each trigger, next file is played chosen in the sequence order of file names (sorted in numerical order of the first 3 digits).

When all the files have been played, broadcast starts again with the first file in the list.

- **The 3rd digit is a figure which defines the mode for triggering files**

This parameter only applies in the trigger directory «1xx». This last digit is ignored in the default directory «0xx».

xx0 : The trigger directory is launched by an impulse in **Non re-activation mode** ; a new impulse during current playback has no effect, the impulse is ignored.

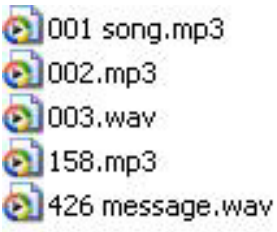
xx1 : The trigger directory is launched by an impulse in **Re-activation mode** ; a new impulse stops current playback to broadcast another file.

xx2 : The trigger directory is read as long as the input contact is activated. Playback stops when the contact is released.

4.2 Organization of audio files included in the directories

As for directories, file names affect playback pattern.

- In random mode, naming of files is free. Only the extension is meaningful: name.mp3 for MP3 files or name.wav for WAVE files.
- In sequential mode, i.e. in sequence order playback mode, the first characters of file names must be 3 figures which define the sequence number of the file and therefore its playback order. The first 3 figures may or may not be followed by a chosen name.
  Example : «001 my song.mp3» or «001.mp3» or «001.wav» or «001 my song.wav»



Note : If both numbered and non-numbered files are present in the directory, only numbered files will be read in sequenced order mode. In random mode, they will all be read.

5 - Infrared remote control

The NanoPlayer includes an infrared sensor on the front of the board and can therefore be operated with a IR remote control. An optional ID-AL infrared remote control handsed is available.

The ID-AL remote handset offers the following controls:

Transport controls: Play / Stop / Next track / Previous track
Volume controls: Increase / Decrease
Trigger key: Launches the trigger directory (as an input contact)

Appendix A - Characteristics

Power supply:
• Nominal voltage: 12V DC
• Power supply range: 10V to 15V DC

Consumption on 12V power supply:
• Stand-by: 60mA
• Reading (line level output - amplified output not used): 95mA
• Reading - amplifier maximum @8Ohms: 2A (varies with volume level)

Output audio power:
• Voltage 12V - THD 10% - Charge 8 Ohms: 2 x 7W
• Voltage 12V - THD 0,5% - Charge 8 Ohms: 2 x 5W

Dimensions:
• Width: 70mm - Height: 18mm
• Depth without connectors: 67mm - Depth with connectors: 80mm

Weight: 40g

Appendix B - Functions

Audio characteristics
• Reads stereo MP3 files (MPEG ½ layer 3), 44.1KHz, from 112kbit/s to 320kbits/s
• Reads CBR (Constant Bit Rate) files and VBR (variable Bit Rate) files
• Reads stereo Wav files, 44.1kHz, 16 bits
• Volume setting = 32 steps

SD Memory card
• Accepts SD card - 64Mo minimum - Formatted in FAT16 and FAT32
• Supports long file names
• 999 files maximum

Interfacing
• Status indicator LED
• Infrared sensor - Play, Stop, Next, Previous, Trigger, Volume +, Volume -
  Protocole SONY SIRC 12bits modulated at 38kHz
• 1 input on dry contact on Phoenix 3.81mm plug-in connector
• External power supply connector DC 2.1/5.5 and internal
• Various extension connectors. Customized applications on request.
• Stereo output on mini-jack and internal connector
• Amplified stereo output on screw-in terminal block

Directory trigger by:
• 1 input on contact - Bounce management 100ms fixed
• Infrared remote control

Encryption of MP3 files
• Compatible with encryption software tool v1 or v2. On request

Note :

http://www.id-al.com

http://www.wsystem.com